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REPORT

OF THE

BUREAU OF
Feeds and Fertilizers

FOR THE YEAR

1917

BY

JAS. A. SMITH, Chief

BUREAU FEEDS AND FERTILIZERS

COLUMBUS, OHIO:
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DEPARTMENT OF AGRICULTURE,

Bureau of Feeds and Fertilizers.

COLUMBUS, OHIO, June 1, 1918.

HON. N. E. SHAW,
Secretary of Agriculture,
Columbus, Ohio.

DEAR SIR: —

I have the honor to submit herewith for your approval a report of the results of analyses of the samples of Insecticides and Fungicides received from Inspectors of this Department during 1917. The information includes in detail the results secured for each sample, the guarantees found upon attached labels and such comments as appeared necessary.

Very respectfully,

JAS. A. SMITH, *Chief,*
Bureau of Feeds and Fertilizers.

IMPORTANT! — READ CAREFULLY.

On the ground that the fee section (1177-36 of the General Code of Ohio) of the Ohio Insecticide and Fungicide Law, if enforced, would produce a revenue greater than that necessary to maintain the administration of the Law, the Ohio Courts have held the same to be unconstitutional and have enjoined and restrained the Board of Agriculture of Ohio (formerly the Agricultural Commission of Ohio) from proceeding with the enforcement of payment of fees under the provisions of said section for the sale of Insecticides and Fungicides or essential ingredients thereof, or of any other product therein enumerated. *All other sections of the law are valid and will be administered and enforced.*

INSPECTION AND ANALYSES OF INSECTICIDES AND FUNGICIDES.

JAS. A. SMITH, *Chief.*
H. F. FRICKE, B. W. SEBRING, K. E. PARMER, *Deputies.*

Object of the Law.

The purpose of the Ohio Insecticide and Fungicide Law is to regulate the sale of substances and compounds sold as insecticides and fungicides, to prevent their adulteration and to fix a standard of sale for such preparations as ARSENATE OF LEAD, LIME SULPHUR SOLUTION, PARIS GREEN, BORDEAUX MIXTURE, as well as to expose and prevent frauds and to protect manufacturers and dealers in the sale of honest goods.

Ohio Insecticide Law.

The Ohio Law is modeled after the National Government's Act which permit manufacturer when making claims to state per cent of each Active Ingredient and Total Per cent of Inert, or in lieu thereof the percent of each Inert Ingredient without mentioning the Active. If product is 100% Active not necessary to state ingredients on package.

Meaning of Inert.

Any substance or mixture of substances that will not prevent, destroy, repel or mitigate insects which may infest vegetation, man or animals or households or be present in any environment whatever would be classed as INERT.

All Registered Goods Not Analyzed.

Inspectors were unable to locate samples of all brands licensed which account for their analyses not appearing herein. However, list of all brands registered are published elsewhere in this Report.

INSECTICIDES AND FUNGICIDES — A CLASSIFICATION.

Various groups of insects act harmfully on plants or animals, or as pests in households or granaries and require special methods of treatment to kill them. These insects which principally injure plants, and for which insecticides are most often applied, are external feeders which include "biting" or "sucking" insects.

Biting insects are those which actually eat some part of the solid substance of the plant, as the leaf, bark or flower. For these, poisonous substances are used which can be sprayed upon the plan or tree attacked and then be eaten by the insect in its food.

Sucking insects are those which live by sucking the plant juices from leaf, bark, fruit, etc. For these insecticides must be used which kill the insect either by their being caustic, by smothering, by closing the breathing pores or by filling the air about the insects with poisonous fumes.

Insecticides must be classified according to the groups of insects upon which they act.

Insecticides used against:

1. External Feeders.
   (a) Biting insects.
   (b) Sucking insects.
2. Internal Feeders.
3. Subterranean insects.
4. Insects affecting stored products.
5. Household pests.
6. Animal parasites.

The following may be considered customary products for combating several of the above classifications:

1. (a) External biting insects.
   Paris green.
   London purple.
   Lead arsenate paste.
   Lead arsenate dry.

1. (b) External sucking insects.
   Soaps.
   Caustic soda.
   Caustic potash.
   Lime sulphur mixtures.
   Kerosene emulsions.
   Dilute nicotine solutions.
   Hydrocyanic acid gas.
   Vapors of carbon bisulphide.

Subterranean insects.
   Kerosene emulsions.
   Potash fertilizers.
   Strong soap wash.
   Carbon bisulphide.

Insects affecting stored products.

Carbon bisulphide.

Animal parasites.

Tobacco extracts.
Lime sulphur mixtures.
Creosote dips.

The fungicides are those preparations which will combat that parasitic plant life which seriously affects such a large proportion of our vegetable life.

The following are our most common preparations for this purpose:

Bordeaux mixture.
Copper sulphate.
Copper carbonate.
Lime ferrous sulphate.
Lime sulphur mixtures.

FRUIT GROWERS' SPRAY CALENDAR.*

By N. E. Shaw, *Chief Inspector,*
Division of Nursery and Orchard Inspection.

The time has passed when first-class fruit of any kind can be produced without controlling the different insects and diseases affecting them. Pruning, cultivation, mulching, fertilizing and other cultural methods are of little avail unless systematic spraying is also practiced.

This bulletin is not intended to contain a complete method of treatment for all pests with which the fruit grower is forced to contend. Only those are mentioned which are at present common in Ohio, and which are seriously affecting fruit trees, small fruit plants, vines and their products.

Many insects and diseases are subject to weather conditions and other factors which may increase their numbers and activities, and in certain seasons may be difficult to control. At such times the total number of applications for any particular pest, as given in the calendar, may need to be applied. In normal seasons it is often possible to omit some of these treatments.

Some of the insects and diseases mentioned are as yet but local in their distribution and do not occur in all sections of the state.

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* The Fruit Growers' Spray Calendar was prepared by the Hon. N. E. Shaw, Secretary of Agriculture, at a time when he was known officially as Chief of Division of Nursery and Orchard Inspection. Its value is such that it is again reproduced for the benefit of that greatest of all users of Insecticides and Fungicides, the Fruit Grower.

The correct time for applying solutions cannot accurately be given. Allowance must be made for differences in weather conditions, also for the fact that there is a difference of about three weeks in the seasons between southern and northern Ohio. Where specific dates are given they apply to the central portion of the state.

The fruit grower should bear in mind that there are two classes of pests with which he is forced to contend, viz.: insects and diseases. They are factors of an entirely different nature, and usually require different solutions for their control. It is often possible to combine an insecticide and fungicide and spray for the control of an insect and a disease at one application. A careful study of the calendar will show that advantage can be taken of this arrangement in spraying for a number of pests.

In controlling such insects as San Jose scale, plant lice and all other insects which have sucking mouth parts, the application must be made directly to the insect as the solution kills by contact.

For insects with biting mouth parts, such as the codling worm, canker worm, slugs, etc., the solution must be applied to the surface of the leaves and fruit, or in such a manner that the poison will be taken up by the insect in feeding.

In controlling fungous diseases, application must be made promptly and at or before the time of the germination of the spores producing the disease. Very few fungous diseases can be destroyed after the mycelium has entered the tissues of the plant.

It is necessary for the fruit grower to become familiar with the habits, life history and development of the different insects and diseases in order that he can deal with them intelligently and adapt to his own locality and conditions the necessary modifications to the general program herein given. With this knowledge, spraying can often be supplemented and aided by other methods, and advantage should be taken of these conditions whenever it is possible to do so.

Spraying should be practiced regularly as an insurance, and trees, plants or vines should never be omitted because they do not show prospects of fruit. By keeping a healthy, vigorous foliage, better fruit bud development will be secured for the crop of the succeeding year. Spray every year and spray thoroughly.

The kind of a spraying outfit to use will depend upon the size and number of trees or plants to be treated. For family orchards a hand pump mounted upon a barrel should be sufficient. The working parts of the pump should be of brass; there should be a good air-chamber, in order that good pressure can be maintained with as little effort as possible; not less than twenty-five feet of good hose should be used, and a bamboo rod of eight or ten feet in length. Avoid cheap, inferior pumps. Efficient work cannot be done with them. For treatment, on a small scale, of plants, vines and few small trees, a good knapsack outfit may

be sufficient. Commercial orchardists and vineyardists will necessarily need to depend upon some form of power outfit for the proper treatment of their trees or vines.

(A list of manufacturers of spraying machinery will be mailed on request.)

Treatment Calendar.

APPLE.

In preparation for spraying apple trees, they should first be properly pruned. Trees which have grown too tall should be reduced in height by cutting back topmost branches to lateral ones. Lateral limbs which extend out too far should also be shortened. Do not strip limbs of the small branches, leaving but a broom arrangement at the end. Too many fruit spurs are thus destroyed. All old bark should be scraped from the trunk and main limbs, as it offers a favorable hiding place for certain insects.

San Jose Scale	Lime-sulphur wash I, or commercial solution * during the dormant period. Late fall or early spring best. Cover every portion of tree.
Oyster-shell Scale Scurfy Scale	Lime-sulphur wash just before the leaves appear, or kerosene emulsion when young lice begin to appear, about first week in June. Cover every portion of tree.
Bud Moth	Arsenate of lead in Bordeaux I, or in lime-sulphur as buds are opening.
Canker Worm	Arsenate of lead as soon as worms appear. If necessary repeat in three or four days.
Codling Moth	Arsenate of lead in Bordeaux I, or in lime-sulphur first, as soon as blossoms fall, direct poison into blossom end of apple; second, about ten days later; third, for second brood, from 10th to last of July.
Apple Curculio	Arsenate of lead in Bordeaux I, or in lime-sulphur before blossoms open; second, just after blossoms have fallen.
Scab	Bordeaux I, or lime-sulphur just before blossoms open; second, as soon as blossoms fall; third, about ten days later. Cover tree thoroughly.
Sooty Fungus	Bordeaux I, or lime-sulphur after blossoms fall, then at ten-day intervals.

* When the concentrated lime-sulphur solution is used, either as a dormant spray or as a substitute for Bordeaux mixture, hydrometer test should be made and the solution diluted according to table herein given.

Bitter Rot	Bordeaux I about forty days after blossoms fall; second, ten days later; third, ten days later.
Apple Blotch	Same as bitter rot.
Frogeye Fungus	Same as bitter rot.
Aphis	Lime-sulphur wash in early spring. Kerosene emulsion on appearance of aphids. Apply directly to aphids.

CHERRY.

Cherry trees need but little pruning. Enough limbs should be removed to admit free access to air and sunlight, as favorable conditions for the development of fungous diseases are thereby lessened.

Leaf Spot	Bordeaux II or Lime-sulphur II when leaves are unfolding; second, two weeks later; third, after crop has been gathered.
Curculio	Arsenate of lead in Bordeaux I, or lime-sulphur before blossoming; second, arsenate of lead in Bordeaux II, or lime-sulphur II after blossoms have fallen; third, same solution one week later.
Rot	Bordeaux I, or lime-sulphur before blossoming; second, Bordeaux II, or lime-sulphur when fruit has set; third, Bordeaux II, or lime-sulphur II, two weeks later.
Aphis	Kerosene emulsion or tobacco solution as soon as aphids appear.
Cherry Slug	Arsenate of lead in Bordeaux II, or lime-sulphur II, as soon as slugs appear.
Powdery Mildew	Bordeaux II, or lime-sulphur II as soon as foliage has developed.

CURRANT.

Prune out and burn all old and dead wood each year. Wilted canes, showing presence of stalk borer, should be cut out and burned as soon as detected.

San Jose Scale	Lime-sulphur wash I, or commercial solution before leaves appear. Cover entire surface of plant
Leaf Spot—Mildew	Bordeaux I, as leaves begin to appear; then every two weeks until midsummer.

Imported Currant Worm..... White hellebore, or arsenate of lead in Bordeaux when worms first appear.

Four Lined Plant Bug..... Kerosene emulsion middle of May, or on appearance of nymphs; second, early in June.

GOOSEBERRY.

Leaf Spot ..... Bordeaux I as leaves are unfolding; then every two weeks until midsummer.

Mildew ..... Bordeaux I before leaves appear; second, after blossoming; third, ammoniacal copper carbonate two weeks later.

Currant Worm ..... See under Currants.

GRAPES.

Admit air and sunlight by judicious pruning. This practice is very necessary in order to capably control grape diseases; more effective spraying can also be done for grape berry moth. Cultivation in early summer destroys many of the pupæ of the root worm.

Anthracnose ..... Bordeaux I before buds break; second, before blossoming; third, after fruit has set.

Mildew ..... Bordeaux I just before blossoming; second, just after fruit has set.

Black Rot ..... Bordeaux I as soon as first leaves have expanded; second, just after fruit has set; repeat every two weeks until fruit is nearly grown, then use ammoniacal copper carbonate every ten days if necessary.

Grape Slug ..... Arsenate of lead in Bordeaux I as soon as worms appear, or dust with lime.

Berry Moth ..... Arsenate of lead in Bordeaux I before blossoming; second, when fruit is about ⅛ inch in diameter; third, about 1st to 15th of July. Use good pressure.

Root Worm ..... Arsenate of lead latter part of June.

Leaf Hopper ..... Kerosene emulsion to underside of leaves about 1st of July.

Grape Flea-beetle ..... Arsenate of lead as buds are swelling; second, about two weeks later.

PEACH.

Prune peach rather severely. If affected by fruit bark beetles, cut back to stubs and stimulate growth by liberal application of barnyard manure or commercial fertilizer, or both. Dig out peach bores early in spring with knife, or kill them in burrows with a stiff wire. Collect and burn all mummied fruits. Grub out and burn all trees affected with "yellow" or "little peach" as soon as detected.

San Jose Scale	Lime-sulphur wash I in late fall or just before fruit buds open.
Leaf Curl	Lime-sulphur wash I or Bordeaux I in March just before fruit buds start to swell.
Brown Rot	Lime-sulphur wash I or Bordeaux I as buds are swelling; second, Lime-sulphur II just after fruit has set; third, two weeks later; fourth, when fruit is nearly grown.
Scab	Bordeaux I or Lime-sulphur I as buds are swelling; second, Lime-sulphur II or Bordeaux II just after calyx drops; third, same two weeks later.

PEAR.

Treatment for the pear is similar to that for the apple. Twigs and limbs affected by blight should be pruned out and burned as soon as detected.

San Jose Scale	Early winter or late spring, while trees are dormant.
Bud Moth	Arsenate of lead as leaf buds are opening.
Canker Worm	Same as for apple.
Codling Worm	Same as for apple.
Slug	Arsenate of lead or slaked lime when slugs appear.
Scab	Bordeaux I just before blossoming; second, after blossoms drop.
Leaf Blight	Same as for scab.

PLUM.

Careful pruning should be given the plum. Conditions favorable for development of rot are lessened by allowing air and sunlight free

access. Thinning out the fruit is often an advantage. Prune out and burn black knot whenever detected. Jar trees in early morning and catch dislodged curculio in sheets spread under the trees; then destroy them in kerosene. Collect and burn mummied plums during winter. For fruit bark beetles use same method as for peach.

San Jose Scale	Same as for apple, peach, etc.
Curculio	Arsenate of lead in Bordeaux I or lime sulphur, as buds are swelling; second, arsenate of lead in Bordeaux II or lime-sulphur, just after petals fall; third, ten days later.
Aphis	Kerosene emulsion or tobacco solution when aphids appear.
Plum Pockets	Bordeaux I as buds are swelling.
Rot	Bordeaux I as buds are swelling; second, Bordeaux II or Lime-sulphur II, after petals fall; third, same about three weeks later. Use copper carbonate after fruit begins to color.
Shot Hole Fungus	Bordeau II, or Lime-sulphur II as foliage is developing; second, same three weeks later.

QUINCE.

San Jose Scale	Same as for apple.
Curculio	Same as for plum.
Blight	Same as for pear.
Leaf Spot	Bordeaux I as buds are swelling; second, after petals fall; others at intervals of two weeks.

RASPBERRY, BLACKBERRY, DEWBERRY.

Cut out and burn before spring all old canes and all canes seriously affected by anthracnose; also canes with leaves affected by orange rust.

Saw-fly	Arsenate of lead or hellebore when leaves are half grown.
Anthracnose	Bordeaux I before leaves appear; second, Bordeaux II or Lime-sulphur II when young canes are about six inches high; third, one week later.
Leaf Spot	Bordeaux I, when foliage is about half grown, then every two weeks if necessary.

STRAWBERRY.

To escape injury by white grub, never plant on land that has been in sod.

Root Louse ..... Burn over infected beds in November and March. Dip affected plants in tobacco decoction before planting.

Leaf Spot ..... Bordeaux I when growth begins in spring, before flowers open.

Fungicides.

BORDEAUX MIXTURE I.

Copper sulfate (blue vitrol or blue stone), 3 pounds.
Stone lime, 4 pounds.
Water, 50 gallons.
(If hydrated lime is preferred use 6 pounds.)

Prepare a stock solution of copper sulfate by dissolving the copper sulfate in water, using one gallon of water for every pound to be dissolved.

Place the copper sulfate in a burlap sack and suspend in a barrel or wooden vessel of water to the depth of a few inches, until dissolved. (Do not place entire amount under water.) Place in the spray tank one gallon of this stock solution to every pound of copper sulfate to be used and fill tank about half full of water. Prepare the required amount lime to be used for each spray tank full by slaking the lime and adding water until a milk of lime is produced. Strain this into the copper sulfate solution, keeping the mixture stirred thoroughly. Add water to fill the tank and apply.

BORDEAUX MIXTURE II.

Copper sulfate (blue vitriol or blue stone), 3 pounds.
Stone lime, 2 pounds.
(If hydrated lime is preferred use 3 pounds.)
Water, 50 gallons.

To be used instead of Bordeaux I on peach, plum, cherry and other plants with tender foliage.

Self-boiled lime, or lime sulphur wash II.
Stone lime, 8 pounds.
Flowers of sulfur, 8 pounds.
Water, 50 gallons.

Place the lime in a barrel and pour on enough water (about two gallons) to start it slacking. Then add the sulfur and about two gallons more of water. Stir thoroughly and do not let the mixture cake on the bottom of the barrel. As soon as the slaking of the lime is over, dilute

to 50 gallons of water and strain through a sieve of 20 meshes to the inch, working all of the sulfur through the strainer.

(This mixture will not destroy San Jose Scale. Use Lime-sulfur I, or commercial solution for this purpose.)

AMMONIACAL SOLUTION OF COPPER CARBONATE.

Copper carbonate, 5 ounces.
Ammonia, about 3 pints.
Water, 50 gallons.

(Use only enough ammonia to dissolve copper carbonate.)

Add a little water to copper carbonate until a paste is produced. Dilute ammonia with about five gallons water, then add paste to this solution and stir until it is dissolved. Add water to make 50 gallons, and after all sediment has settled pour off clear blue liquid.

(To be used instead of Bordeaux after fruit has begun to color.)

COPPER SULFATE SOLUTION.

Copper sulfate, 4 pounds.
Water, 50 gallons.

Dissolve sulfate for Bordeaux mixture. (Use only before foliage appears.)

Insecticides.

LIME-SULPHUR WASH I.

Sulfur, 15 pounds.
Lime, 20 pounds.
Water, 50 gallons.

Place the lime in about 10 gallons of hot water in an iron kettle, then gradually stir in the sulfur. Boil thoroughly for *one hour,* keeping the mixture well stirred, adding more water if necessary to keep from sticking. Strain, dilute with water to make 50 gallons and apply.

(This mixture corrodes brass and copper and a pump with brass fittings should be cleaned by running clear water through it after each day's spraying. Never boil the wash in a copper kettle.)

HOME-MADE CONCENTRATED LIME SULPHUR SOLUTION.

Lump lime, 50 pounds.
Sulfur, 100 pounds.
Water, 50 gallons.

Use best grade of lump lime obtainable. Should test 90 per cent calcium oxide, and be free from impurities.

Heat to boiling in cooking vessel about fifteen gallons of water then gradually place in it the fifty pounds of lime. As the lime begins to slake add the 100 pounds of sulphur. After the slaking of the lime has ceased, add enough water to make the full amount required by the formula. If fire is used additional water will need to be added to keep

the mixture to the required amount. If steam is used this will not be necessary. The mixture should be kept at the boiling point for practically one hour or until all the lime and sulfur are dissolved. Constant stirring will be necessary. A measuring stick graduated according to the capacity of the vessel used will aid in keeping the volume of solution up to the required amount. When additions of water are necessary, hot water should be used.

Place in an air tight barrel when cool, and use as needed. A hydrometer reading should be made of the prepared solution and dilutions made according to table.

COMMERCIAL LIME SULFUR SOLUTION.

This solution can be obtained on the market and is ready to apply when properly diluted with water. A hydrometer reading should be made before using; 32 Degrees Baume is considered as standard and commercial brands should give this reading. (This test is of no value if salt or any other substance, which will raise the specific gravity, has been added to the solution.)

Dilute according to table herein given.

Dilutions for Dormant and Summer spraying with Lime-Sulfur mixtures. (From Bulletin No. 330 New York Agricultural Experiment Station.)

Reading of hydrometer.	Number of gallons of water to one gallon of sulfur solution.	
Degrees of Baume.	For San Jose scale.	For summer spraying of apples.
35	9	45
34	8.75	43.25
33	8.25	41.50
32	8	40
31	7.50	37.75
30	7.25	36.25
29	6.75	34.25
28	6.50	32.75
27	6	31
26	5.75	29.50
25	5.25	27.75
24	5	26
23	4.50	24.25
22	4.25	22.75
21	3.75	21.25
20	3.50	19.75
19	3.25	18.25
18	3	17
17	2.75	16
16	2.50	15
15	2.25	14
14	2	12.75

WHITE HELLEBORE.

Hellebore, 1 ounce.
Water, 3 gallons.

Hellebore loses its strength on being exposed to the air. To be used on plants whose product is nearly ready for market. Care should be used in procuring a fresh supply.

PARIS GREEN.

Paris green, 1 pound.
Stone lime, 3 pounds.
Water, 100-150 gallons.

When Paris green is used with Bordeaux mixture, additional lime is unnecessary.

ARSENATE OF LEAD.

Arsenate of lead 2-5 pounds.
Water to make 50 gallons.
(Same amounts when used with Bordeaux or dilute Lime-sulfur.)

Place the amount of lead to be used in a pail or churn, add a small amount of water and stir thoroughly until it will pass readily through the strainer into the spray tank.

When used with lime-sulfur solution as a Summer spray, it is best to place arsenate of lead in spray tank after the other materials.

KEROSENE EMULSION.

Laundry or whale oil soap, ½ pound.
Water, one gallon.
Kerosene, two gallons.

Dissolve the soap in the gallon of water. When boiling hot remove from the fire and add the full amount of kerosene. Stir the mixture violently, or better, drive it through a force pump back into the vessel until it becomes a creamy mass that will not separate. This makes the stock solution. For soft bodied insects such as plant lice, the young lice of scale insects, etc., use one part emulsion to 15 parts water. For hard bodied insects such as chinch bugs, use one part emulsion to eight or ten parts water.

This solution must be applied directly to the insect as it kills by contact.

Care must be taken to keep this solution well agitated when using.

TOBACCO DECOCTION.

Boil two pounds of tobacco stems in one gallon of water, then dilute to the color of strong coffee.

This solution is not as effective as Kerosene emulsion but is safer to use on tender foliage.

A number of products of tobacco can be obtained on the market.

SALE ILLEGAL IN 1917, BECAUSE UNREGISTERED OR MISBRANDED.

APHINE MFG. CO., MADISON, N. J.

21 Vermine.
20 Aphine.

ALBION CHEM. CO., ALBION, MICH.

43 A. C. W. Insecticide.

JAS. A. BLANCHARD CO., NEW YORK, N. Y.

33 Iron Brand Dalmation Insect Powder.

BUFFALO SPECIALTY CO., BUFFALO, N. Y.

42 Allinone Sprayer. Adulterated under Sec. 5, Misbranded under Sec. 1177-34 G. C.

THE CAPITAL FOOD CO., TIFFIN, O.

632 Capital Sal Vago.

S. R. FEIL CO., CLEVELAND, O.

56 Sal Vet Lice Powder. Adulterated under Sec. 1177-33 G. C.

FLECK, J. J., TIFFIN, O.

38 Fleck's Lice Powder.
39 Fleck's Liquid Lice Exterminator.

HAMMOND'S SLUG SHOT WORKS, BEACON, N. Y.

30 Hammond's Slug Shot. Adulterated under Sec. 5, Paragraph 4, O. L. Misbranded.
29 Hammond's Tobacco Ext.

HESS & CLARK, ASHLAND, O.

36 Dr. Hess' Instant Louse Killer. Adulterated under Sec. 1177-33 G. C.

HALL, J. W., PEMBROKE, N. Y.

65 Hall's Black Diamond Lice Powder.

HALL VAN GORDER CO., CLEVELAND, O.

24 Hellebore White Powder.

JERSEY CITY, N. J.

69 Key Brand Bordo Lead. Misbranded under Sec. 1177-29 G. C.
71 Key Brand Arsenate of Lead. Misbranded under Secs. 1177-29, 1177-34 G. C.
70 Key Brand Bordeaux Mixture. Misbranded under Sec. 1177-29 G. C.

INTERSTATE CHEMICAL CO., INDEPENDENT STOCK REMEDY CO., COLUMBUS, O.

20 Independent Lice Killer. Misbranded under Sec. 1177-34 G. C.

INTERNATIONAL STOCK FOOD CO., MINNEAPOLIS, MINN.

53 International Louse Killer. Adulterated under Sec. 1177-33 G. C.
54 International Phenol.

IMPERIAL CHEMICAL CO., GRAND RAPIDS, MICH.

3 Paris Green.

LEATHEIMER-GEHMAN CO., CANTON, O.

50 L. & G. Lice Powder.

Sale Illegal in 1917, Because Unregistered or Misbranded—Concluded.

MORRIS HERRMANN & CO., NEW YORK, N. Y.

101 Herrmann's Hi Grade Pure Paris Green.

NICOTINE MFG. CO., ST. LOUIS, MO.

35 Nikotean.

PRATT FOOD CO., PHILADELPHIA, PA.

5 Pratt's Gerneathal. Misbranded.
1 Pratt's Poultry Disinfectant.

SENECA CO., TIFFIN, O.

23 Seneca Lice Powder. Adulterated.

STERLING CHEMICAL CO., CAMBRIDGE, MASS.

1 Powdered Tobacco.

UNIVERSAL ANIMAL FOOD CO., COLUMBUS, O.

22 Universal Louse Killer. Misbranded under Sec. 1177-34 G. C.

WALDING, KINNANE & MARVIN CO., TOLEDO, O.

103 Solution Formaldehyde, 40% Volume.

ZENNER DISINFECTANT CO., DETROIT, MICH.

51 Zenoline.

TABULATED ANALYSES OF INSECTICIDES AND FUNGICIDES.

Samples gathered during 1917.

All analyses made at Laboratory of Ohio State Board of Health, Columbus, O. Samples retested and results confirmed.

Brands Which Claim Only Inert Ingredients.

Record Number.		Claimed and Found.	Water—Per Cent.
	CONKEY, G. E. CO., CLEVELAND, OHIO.	**1917**	
17	Conkey's Nox-I-Cide	Claimed Found	9.00 .....
18	Conkey's Lice Liquid	Claimed Found	18.00 14.00
	PRATT, B. G. CO., NEW YORK, N. Y.	**1917**	
16	Scaleicide	Claimed Found	7.00 6.7 Oils 94%

Brands Which Claim Arsenic Compounds.

Record Number.		Claimed and Found.	Lead Oxide — Per Cent.	Arsenious Oxide.	Arsenic Oxide, Water Soluble.	Total Arsenic Oxide—Per Cent.	Inert — Per Cent.	Copper — Per Cent.	Water.	Paris Green.
	CORONA CHEMICAL CO., TRENTON, N. J.									
	1917									
14	Dry Powdered Arsenate of Lead	Claimed	64.26	.....	0.05	19.5	.....	.....	.....	.....
		Found	.....	.....	.75	32.16	2.	.....	.....	.....
	DEVOE & RAEYNOLDS, NEW YORK AND CHICAGO.									
	1917									
11	Paris Green	Claimed	.....	3.5	.....	.....	.....	0.50	.....	.....
		Found	.....	0.99	.....	.....	.....	0.55	.....	.....
	GRASSELLI CHEMICAL CO., CLEVELAND, OHIO.									
	1917									
26	Arsenate of Lead	Claimed	.....	15.	0.5	.....	.....	.....	.....	.....
		Found	.....	17.42	0.27	.....	.....	.....	41.95	.....
	INTERSTATE CHEMICAL CO., JERSEY CITY, N. J.									
	1917									
12	Target Brand Arsenate of Lead	Claimed	.....	15.5	.....	.....	.....	.....	.....	.....
		Found	.....	19.2	0.5	.....	.....	.....	.....	.....
	MICHIGAN GYPSUM CO., GRAND RAPIDS, MICH.									
	1917									
115	Bug Finish	Claimed	.....	.....	.....	.....	99.	.....	.....	.....
		Found	.....	0.57	.....	.....	.....	.....	.....	.....
	SHERWIN WILLIAMS CO., CLEVELAND, OHIO.									
	1917									
32	Paris Green	Claimed	.....	50.	3.5	.....	.....	.....	.....	.....
		Found	.....	55.88	1.88	.....	.....	.....	.....	.....
111	Arsenate of Lead	Claimed	.....	30.	1.	.....	.....	.....	.....	.....
		Found	.....	31.61	0.96	.....	.....	.....	.....	.....
	BOWKER INSECTICIDE CO., CINCINNATI, OHIO.									
	1917									
40	Bowkers Pyrox	Claimed	12.	5.25	0.14	.....	81.25	1.5	.....	.....
		Found	18.41	6.43	0.18	.....	61.25	3.32	61.42	.....
	SMITH, H. J. & CO., UTICA, N. Y.									
	1917									
54	Dry Powdered Arsenate of Calcium and Lead	Claimed	.....	.....	.....	.....	.....	.....	.....	33.
		Found	.....	23.07	0.99	.....	.....	.....	.....	44.3

Lime-Sulphur Solution and Other Sulphur Compounds.

Record Number.		Claimed and Found.	Water — Per Cent.	Inert — Per Cent.	Sulphur.	Degree Baume.	Calcium Polysulphide.	Calcium Thiosulphide.
	GRASSELLI CHEMICAL CO., CLEVELAND, OHIO.							
25	Lime Sulphur Solution.....	**1917** Claimed ..	.....	68.00	25.00	33 °	31.00	1.00
		Found ..	.....	.....	24.80	32.6°	32.53	2.35
	SHERWIN WILLIAMS CO., CLEVELAND, OHIO							
31	Lime Sulphur Solution.....	**1917** Claimed ..	68.00	.....	24.00	..33 °	30.00	2.00
		Found	.....	.....	24.53	32.8°	31.20	4.05
	TOLEDO REX SPRAY CO., TOLEDO, OHIO.							
15	Rex Lime & Sulphur Solution.....	**1917** Claimed ..	.....	70.00	24.00	31 °	.....	2.10
		Found	.....	.....	24.66	31.4°	.....	1.90

Lime Sulphur and Other Sulphur Compounds.

Record Number.		Claimed and Found.	Water—Per Cent.	Inert — Per Cent.	Sulphur — Per Cent.	Phenols.	Nicotine.	Napthalene.	Pyrethrum.
	LEE CO., GEO. H., OMAHA, NEB.								
2	Lee's Louse Powder.....	**1917** Claimed .	.....	30.00	70.00	.....	.....	.....	.....
		Found ...	.....	27.84	68.60	.....	.....	1.48	2.08
	NIAGARA SPRAYER CO., MIDDLEPORT, N. Y.								
6	Soluble Sulphur Compound.....	**1917** Claimed .	.....	.....	60.00	.....	.....	.....	.....
		Found ...	.....	.....	61.56	.....	.....	.....	.....
	CONKEY CO., G. E., CLEVELAND, OHIO.								
19	Conkey's Lice Powder.....	**1917** Claimed .	.....	83.45	15.85	0.60	0.10	.....	.....
		Found ...	.....	.....	14.40	0.31	0.39	.....	.....

Tobacco Compounds.

Record Number.		Claimed and Found.	Inert — Per Cent.	Nicotene — Per Cent.	Napthalene — Per Cent.	Pyrethrum.
	GRASSELLI CHEMICAL CO., CLEVELAND, OHIO.					
27	Sulphate of Nicotine	1917 Claimed	85.00	15.00	.....	.....
		Found	.....	15.36	.....	.....
28	Sulphate of Nicotine	Claimed	60.00	40.00	.....	.....
		Found	.....	40.34	.....	.....
	KENTUCKY TOBACCO PRODUCTS CO., LOUISVILLE, KY.					
8	Black Leaf 40	1917 Claimed	60.00	40.00	.....	.....
		Found	.....	41.98	.....	.....
7	Nico Fume	Claimed	60.00	40.00	.....	.....
		Found	.....	41.44	.....	.....
	PRATT FOOD CO., PHILADELPHIA, PA.					
2	Pratt's Lice Killer	1917 Claimed	90.06	0.34	5.06	4.00
		Found	.....	0.76	6.20	.....

Miscellaneous.

Record Number.		Claimed and Found.	Copper — Per Cent.	Lead Oxide — Per Cent.	Inert — Per Cent.	Zinc Oxide.	Water.	Phenols.	Coal Tar Deriv.	Soap.
	DANFORTH CHEMICAL CO., LEONIMSTER, MASS.									
	Bug Death	1917 Claimed	.....	5.00	48.	47.	.....	.....	.....	.....
		Found	.....	5.96	.....	65.90	.....	.....	.....	.....
	FEIL MFG. CO., CLEVELAND, OHIO.									
55	Sal Vet Disinfectant and Dip	1917 Claimed	.....	.....	.....	.....	9.	.....	.....	.....
		Found	.....	.....	.....	.....	7.2	12.7	.....	.....
	GRASSELLI CHEMICAL CO., CLEVELAND, OHIO.									
34	Grasselli's Bordeaux Mixture	1917 Claimed	7.5	.....	92.5	.....	.....	.....	.....	.....
		Found	8.	.....	.....	.....	54.92	.....	.....	.....
	HESS & CLARK, ASHLAND, OHIO.									
9	Dr. Hess Dip and Disinfectant	1917 Claimed	.....	.....	.....	.....	.....	14.	53.	20.
		Found	.....	.....	.....	.....	.....	14.8	55.	22.2
	INTERSTATE CHEMICAL CO., JERSEY CITY, N. J.									
13	Bordeaux Mixture	1917 Claimed	4.	.....	.....	.....	.....	.....	.....	.....
		Found	5.04	.....	.....	.....	71.26	.....	.....	.....
	PRATT FOOD CO., PHILADELPHIA, PA.									
3	Pratt's Animal Dip and Disinfectant	1917 Claimed	.....	.....	.....	.....	10.	13.	.....	.....
		Found	.....	.....	.....	.....	.....	.....	.....	.....
4	Pratt's Liquid Lice Killer.	Claimed	.....	.....	.....	.....	1.	.....	.....	.....
		Found	.....	.....	.....	.....	none	1.09		Oils 98.9

LIST OF INSECTICIDES AND FUNGICIDES REGISTERED BUT NOT ANALYZED.

AMERICAN DRUGGISTS SYNDICATE, LONG ISLAND CITY, N. Y.

A.D.S. Bug Killer.
A.D.S. Larkspur Lotion.
A.D.S. Roach Powder.
A.D.S. Compound Insect Powder.

THE ARCO CO., CLEVELAND, O.

Hygeno "A".

THE BIG WIZARD CHEMICAL CO., CINCINNATI, O.

Big Wizard Roach and Insect Powder.

BOWKER INSECTICIDE CO., BOSTON, MASS.

Bowker's Concentrated Lime Sulphur.
Bowker's Arsenate of Lead, (Disparene Brand).

WILLIAM BRANSON, BLOOMINGTON, ILL.

Insectinos.

H. BRAUN SONS & CO., COLUMBUS, O.

Crisavon.

CARBO-SUL COMPANY, INC., NEW YORK, N. Y.

Carbo-Sul.

CARPENTER-MORTON CO., BOSTON, MASS.

Cow-Ease.

COMMON SENSE MFG. CO., BUFFALO, N. Y.

Common Sense Preparation for Cockroaches.

CORONA CHEMICAL CO., MILWAUKEE, WIS.

Corona Dry Bordeaux Mixture.
Corona Dusting Sulphur.
Corona Tobacco Dust.

THE G. E. CONKEY CO., CLEVELAND, O.

Fly Knocker.
Dip and Disinfectant.
Head Lice Ointment.

THE DE PREE CHEMICAL CO., CHICAGO, ILL.

San Tox Lotion of Larkspur and Sabadilla Seeds.
De Pree's Formaldehyde Fumigator.
De Pree's High Power Formaldehyde Fumigator.
O.K. Disinfector.

DEVOE & RAYNOLDS CO., INC., CHICAGO, ILL.

Arsenate of Lead (dry).
Arsenate of Lead (paste).
Bordeaux Mixture (semi-paste).
Bordeaux Mixture (dry).
Lime and Sulphur Solution.
Calcium Arsenate (paste).
Calcium Arsenate (dry).

THE DOW CHEMICAL CO., MIDLAND, MICH.

Dow.

A. S. DOWNS, MARTEL, O.

Downs' Louse Exterminator.

GRASSELLI CHEMICAL CO., CLEVELAND, O.

Grasselli Arsenate of Lead Paste.

THE HARRIS POULTRY REMEDY CO., CLEVELAND, O.

"Harris' Death to Lice".

DR. HESS & CLARK, ASHLAND, O.

Dr. Hess's Instant Louse Killer.
Dr. Hess's Fly Chaser.

THE HEYDEN CHEMICAL CO., NEW YORK, N. Y.

Formaldehyde Solution.

List of Insecticides and Fungicides Registered But Not Analyzed.— Continued.

INTERNATIONAL PEAR BLIGHT CURE MANUFACTURING CO., INDEPENDENCE, MO.

Warnock's Tree Paint.

INTERSTATE CHEMICAL CO., JERSEY CITY, N. J.

Arsenate of Lead Paste.
Bordeaux Mixture Powdered.
Petroleum Oils for Scale.
Kerosene Emulsion.
Quick Bordeaux Material.
Bordo-Lead.

I.X.L. POISON FLY PAPER CO., BOSTON, MASS.

I.X.L. Poison Fly Paper.

THE KLEIN-LAMBERT CO., CHICAGO, ILL.

Lambert's "Death to Lice" Powder.

THE KENTUCKY TOBACCO PRODUCT CO., LOUISVILLE, KY.

"Black Leaf" Tobacco Ext.
Nico Fume Tobacco Paper.
Tobacco Dust.

DR. LAPE VETERINARY CO., ADRIAN, MICH.

Dr. Lape's Smut-Destroyer.

FRED L. LAVANBURG CO., NEW YORK, N. Y.

Star Brand Arsenate of Lead.
Star Brand Paris Green.

GEO. H. LEE, OMAHA, NEBR.

Lee's Lice Killer.
Lee's Dip.
Lee's Head Lice Ointment.
Lee's Bug Killer.
Lee's Flyo Curo.

A. MENDLESON'S SONS, ALBANY, N. Y.

Hudson Lye.
Giant Lye.
Acme Chlorinated Lime.
Hudson Chlorinated Lime.

MERRIMAC CHEMICAL CO., BOSTON, MASS.

Swift's Paste Arsenate of Lead.
Swift's Powdered Arsenate of Lead.

A. C. MEYER, BALTIMORE, MD.

Death Dust.

W. E. MINOR DISINFECTANT CO., CLEVELAND, O.

"Minor's Fluid" (Dip & Disinfectant).
Minor's Fly Oil (Fly Repellant).

NIAGARA SPRAYER CO., MIDDLEPORT, N. Y.

Niagara Arsenate of Lead.

NYAL CO., DETROIT, MICH.

Nyal Mosquito Cream.
Nyal Mosquito Lotion.
Nyal Itch Ointment.
Larkspur Lotion.
Nyal Roach Powder.
Death to Flies.
Nyal Antiseptic Dusting Powder.

DIKE DRUG CO., DETROIT, MICH.

Dike's Delphin Lotion.
Dike's Roach Powder.
Poison Fly Paper.

JOHN D. OWENS SONS CO., OWENS, O.

Clover Leaf Lime Sulphur.

B. G. PRATT CO., NEW YORK, N. Y.

"Sulfocide".
Pratt's Nicotine 40%.
Cal-Arsenate.

PARKE, DAVIS & CO., DETROIT, MICH.

Kreso.
Kreso Dip.
Nicotine.

PFEIFFER COLOR CO., NEW YORK, N. Y.

Strictly Pure Bug Brand Paris Green.

List of Insecticides and Fungicides Registered But Not Analyzed.— Concluded.

RAT BISCUIT CO., SPRINGFIELD, O.

"Rat Bis Kit Paste".

J. H. RICHARD EXTERMINATOR WORKS, CINCINNATI, O.

J. H. Richards' Exterminator for Roaches, Rats and Mice.

WM. RUST & SONS CO., NEW BRUNSWICK, N. J.

Rust's Fly-Foe.
Rusoline.
Rust's Mite Killer.
Rust's Lice Killing Powder.

SMITH, H. J. & CO., UTICA, N. Y.

Dry Powdered Arsenate of Calcium and Lead.

SHERWIN-WILLIAMS CO., CLEVELAND, O.

Arsenate of Lead Paste.
Dry Lime Sulphur.
Fungi Bordo Materials.
Tuber Tonic.

STEARNS ELECTRIC PASTE CO., CHICAGO, ILL.

Stern's Electric Rat & Roach Paste.

THOMSEN CHEMICAL CO., BALTIMORE, MD.

Orchard Brand.
B.T.S.
Standard Arsenate of Lead Paste.
Standard Arsenate of Lead Powder.
T.P. Arsenate of Lead Paste.
T.P. Arsenate of Lead Powder.
Arsenite of Zinc Paste.
Arsenite of Zinc Powder.
Arsenite of Lime Powder.
Zinc Bordeaux.
Atomic Sulphur.

TOLEDO REX SPRAY CO., TOLEDO, O.

Rex Arsenate of Lead Paste.
Rex Arsenate of Lead Dry.

WESTMORLAND CHEMICAL AND COLOR CO., PHILADELPHIA, PA.

Fer Sul.

OHIO INSECTICIDE AND FUNGICIDE LAW

(O. L. 103, p. 161; O. L. 107, p. 480)

To regulate the manufacture and sale of insecticides and fungicides in Ohio.

SEC. 1177-29. Each person, firm or corporation who manufactures, sells or offers for sale, in this state, arsenate of lead, Paris green, lime sulphides, miscible combinations of mineral or vegetable oils, Bordeaux mixture or any insecticide or fungicide or essential ingredient thereof used for the control of insects or fungus diseases within the state, shall affix to each package in a conspicuous place on the outside thereof, a plainly printed or written certificate which shall state, in the case of solids, the number of net pounds, or in the case of paste arsenate of lead the number of net pounds on a fifty per centum water basis, or in the case of liquids, the number of gallons contained therein, the name, brand or trademark under which it is sold, or offered for sale, the name of the manufac-

turer and the place of manufacturing same. The certificate shall state also the percentages and chemical compositions of all essential substances or ingredients of said insecticides and fungicides or combinations of the same contained in said commodities, and in the case of lime-sulphur solutions the certificate on each package shall state the degree Baume and the per centum of sulphur. The certificate on each package shall be considered as constituting a guarantee to the purchaser of the contents therein.

Sec. 1177-30. Before selling or offering for sale arsenate of lead, Paris green, lime-sulphides, miscible combinations of mineral or vegetable oils, Bordeaux mixture or any insecticide or fungicide or essential ingredient thereof used for the control of insects or fungus diseases within the state, each person, firm or corporation shall file with the Secretary of agriculture certified copies of the certificate required in the preceding section.

Sec. 1177-31. The term insecticide as used in this act shall include any substance or mixture of substances intended to be used for preventing, destroying, repelling or mitigating any insects which may infest vegetation, man or animals, or households, or be present in any environment whatever. The term fungicide as used in this act shall include any substance or mixture of substances intended to be used for preventing, destroying, repelling or mitigating any and all fungi that may infest vegetation or be present in any environment whatsoever.

Sec. 1177-32. It shall be unlawful for any person, firm or corporation to manufacture, sell or offer for sale in the state any arsenate of lead, Paris green, lime-sulphides, miscible combinations of mineral or vegetable oils, Bordeaux mixture, or any insecticide or fungicide or essential ingredient thereof used for the control of insects and fungus diseases within the state, which is adulterated or misbranded within the meaning of this act.

Sec. 1177-33. For the purpose of this act an article shall be deemed to be adulterated —

In the case of paste arsenate of lead: First, if it contains more than fifty per centum of water; second, if it contains total arsenic equivalent to less than twelve and one-half per centum of arsenic oxid; third, if it contains arsenic in water-soluble forms equivalent to more than seventy-five one hundredths per centum of arsenic and arsenious oxids; fourth, if any substances have been mixed and packed with it so as to reduce, lower or injuriously affect its quality or strength: Provided, however, that extra water may be added to arsenate of lead (as described in this paragraph) if the resulting mixture is labeled arsenate of lead and water, the percentage of extra water being plainly and correctly stated on the label.

In the case of powdered arsenate of lead: First, if it contains total arsenic equivalent to less than twenty-five per centum of arsenic oxide; second, if it contains arsenic in water soluble forms equivalent to more

than one and one-half per centum of arsenic and arsenious oxids; third, if any substances have been mixed and packed with it so as to reduce, lower or injuriously affect its quality or strength.

In the case of Paris green: First, if it does not contain at least fifty per centum of arsenious oxid; second, if it contains arsenic in water-soluble forms equivalent to more than three and one-half per centum of arsenious oxid; third, if any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

In the case of insecticides or fungicides, other than Paris green and lead arsenate: First, if its strength or purity fall below the professed standard or quality under which it is sold; second, if any substance has been substituted wholly or in part for the article; third, if any valuable constituent of the article has been wholly or in part abstracted; fourth, if it is intended for use on vegetation and shall contain any substance or substances which, although preventing, destroying, repelling, or mitigating insects, shall be injurious to such vegetation when used.

Sec. 1177-34. The term misbranded as used herein shall apply to arsenate of lead, Paris green, lime-sulphides, miscible combinations of mineral or vegetable oils. Bordeaux mixture or any other insecticide or fungicide or essential ingredient thereof used for the control of insects or fungus diseases or any other purpose within the state, the package or label of which shall bear any statement, design, or device regarding such article or the ingredients or substances contained therein which shall be false or misleading in any particular or which package shall be falsely branded as to the state, territory or country in which it is manufactured or produced.

For the purpose of this act an article shall be deemed to be misbranded: In the case of insecticides, arsenate of lead, Paris green and fungicides: First, if it be an imitation, or offered for sale under the name of another article; second, if it be labeled or branded so as to deceive or mislead the purchaser, or if the contents of the package as originally put up shall have been removed in whole or in part and other contents shall have been placed in such package; third, if in package form, and the contents are stated in terms of weight or measure, they are not plainly and correctly stated on the outside of the package.

In the case of insecticides (other than Paris green and arsenate of lead) and fungicides: First, if it contains arsenic in any of its combinations or in the elemental form and the total amount of arsenic present (expressed as per centum of metallic arsenic) is not stated on the label; second, if it contains arsenic in any of its combinations or in the elemental form and the amount of arsenic in water-soluble forms (expressed as per centum of metallic arsenic) if not stated on the label; third, if it consists partially or completely of an inert substance or substances which do not prevent, destroy, repel, or mitigate insects or fungi and does not have the names and percentage amounts of each and every one of such

inert ingredients plainly and correctly stated on the label: Provided, however, that in lieu of naming and stating the percentage amount of each and every inert ingredient, the producer, may, at his discretion, state plainly upon the label the correct names and percentage amounts of each and every ingredient of the insecticides or fungicides having insecticidal or fungicidal properties, and make no mention of the inert ingredients, except in so far as to state the total percentage of inert ingredients present.

Sec. 1177-35. It shall be unlawful for any dealers, agent, distributor or other person, who sells or disposes of any arsenate of lead, Paris green, lime-sulphides, miscible combinations of mineral or vegetable oils, Bordeaux mixture or any insecticide or fungicide or essential ingredient thereof used for the control of insects or fungus diseases within the state to adulterate, dilute, alter or change these materials in any way from the form as received in the original package.

Sec. 1177-37. Each year the secretary of agriculture shall cause to have taken samples of the different brands of arsenate of lead, Paris green, lime-sulphides, miscible combinations of mineral and vegetable oils, Bordeaux mixture or any insecticide or fungicide or essential ingredient thereof used for control of insects or fungus diseases within the state and the same shall be analyzed under the direction of the secretary of agriculture. The expenses incurred therefor shall be paid by him from a fund arising from the payment of license fees required in the preceding section.

Sec. 1177-38. For the purpose of analyses and comparison with the certificate deposited with him, and with the certificate on such package, the secretary of agriculture, or a person appointed by him, may purchase in the open market of the state any unbroken original package of any insecticide or fungicide, and may take samples from bulk goods of these materials in the possession of a dealer, consumer or transportation company within the state. Not less than one pound and not exceeding two pounds of solids, and not less than one pint or more than two quarts of liquids shall be taken from bulk goods.

Sec. 1177-39. The secretary of agriculture and such assistants, agents, experts and chemists, as he may duly authorize for the purpose, shall have the power to enter any car, warehouse, building, or any premises in the state where arsenate of lead, Paris green, lime-sulphides, miscible combinations of mineral and vegetable oils, Bordeaux mixture, or any insecticide or fungicide or essential ingredient thereof, are kept and open any package or vessel containing or supposed to contain said commodities and take therefrom samples for analysis upon tendering the value of said samples.

Sec. 1177-40. Whoever sells, within this state, any arsenate of lead, Paris green, lime-sulphides, miscible combinations of mineral and vegetable oils, Bordeaux mixture or any insecticide or fungicide or essential

ingredient thereof used for the control of insects or fungus diseases within the state without complying with the provisions of this chapter, or permits an analysis to be attached to any package thereof stating that it contains a larger percentage of any constituent thereof than it does in fact contain shall be fined not less than fifty dollars nor more than two hundred dollars for the first offense and for any subsequent offense not less than two hundred dollars nor more than five hundred dollars.

In all prosecutions under this act, a justice of the peace, police judge or mayor shall have final jurisdiction as in cases of violation of laws relating to the adulterations of food and drink and dairy products.

SEC. 1177-41. The attorney-general or any prosecuting attorney shall prosecute all violations of this chapter.

SEC. 1177-42. The secretary of agriculture shall make an annual report and may publish from time to time, analyses made of samples taken as provided in section 1177-38 and the analyses guaranteed by the manufacturers. Such report shall contain a statement of monies received and expended from license fees collected for the sale of insecticides and fungicides.

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